

**REMARKS**

Claims 25, 28, 31, 38, 39, 41-43 and 45 have been amended. Independent Claim 25 has been amended to recite that the injector body includes a "bore defined by a cylindrical sidewall and an endwall", "gas passages include gas inlets located in the endwall and gas outlets located in the planar distal end surface of the gas injector body" and "the gas inlets are closer to a central axis of the bore than the gas outlets." Independent Claims 39, 41 and 42 have been amended to recite similar subject matter. Support for these amendments can be found at paragraph [0033] and FIG. 3A of the specification (U.S. Patent Appl. Pub. No. 2001/0010257). Dependent Claims 28, 31, 43 and 45 have been amended to be consistent with independent Claims 25, 39, 41 and 42. Claims 25, 28-36 and 38-45 are pending. Reconsideration and allowance are respectfully requested in view of the following remarks.

**Claim Rejections - 35 U.S.C. § 103**

Claims 25, 28-36 and 38-45 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Koshimizu (U.S. Patent No. 5,935,373) ("Koshimizu") in view of Namose (U.S. Patent No. 5,200,016) ("Namose"). Applicants respectfully traverse this rejection.

Independent Claim 25 recites, *inter alia*, a gas injector for supplying process gas to a plasma processing chamber wherein a semiconductor substrate is subjected to plasma processing, the gas injector comprising, a bore and gas passages in fluid communication with the bore, the bore defined by a cylindrical sidewall and an endwall, the gas passages including gas inlets located in the endwall

and gas outlets located in the planar distal end surface of the gas injector body;  
wherein the gas inlets are closer to a central axis of the bore than the gas outlets  
(emphasis added). Claims 39, 41 and 45 recite similar features of the gas passages.

**A. The Examiner's Position**

The Official Action cites Koshimizu for disclosure of gas processing supply port **156** (final Official Action at page 2, ¶2). The Official Action acknowledges that Koshimizu does not disclose all the features of independent Claims 25, 39, 41 and 42, but cites Namose for disclosure of lower electrode **4** having a plurality of through-holes **5** (final Official Action at page 4, ¶ i-ii; at page 5, ¶ v-ix; at pages 5-6 ¶x-xi; at page 6, ¶ xii-xiii).

**B. The Combination of Koshimizu and Namose Does Not Disclose All Claim Features**

Koshimizu discloses a gas processing supply port **156** for plasma etching apparatus **100** (column 5, lines 42-43; FIG. 1 ), but provides no disclosure of gas passages in an endwall in gas processing supply port **156** (FIG. 1). The final Official Action apparently equates the claimed "gas passages" to through-holes **5** in intermediate electrode **4** of Namose (final Official Action at page 7, last paragraph). FIGS. 1-3 of Namose illustrate that through-holes **5** are either vertical (FIG. 1), inclined at the same angle (FIG. 2) or inclined such that the inlets of the through-holes **5** (i.e., the portion of the through-hole **5** facing reaction chamber **1**) are spaced farther apart than the corresponding outlets of the through-holes **5** (i.e., the portion of the through-hole **5** facing wafer **7**) (FIG. 3). However, neither Namose nor Koshimizu provides any suggestion of a gas injector body wherein "the gas inlets are closer to a central axis of the bore than the gas outlets," as recited in Claims 25, 39, 41 and 42.

Likewise, FIGS. 1-3 of Namose illustrate that intermediate electrode 4 either contains vertical or inclined through-holes 5. Namose provides no disclosure of an intermediate electrode 4 with both vertical and inclined through-holes 5.

Furthermore, Namose teaches away from vertical through-holes 5, because such a configuration results in particulate contamination of the material to be etched (column 4, lines 15-19). Thus, Namose provides no suggestion of a gas injector body having "a center gas passage extending in the axial direction and a plurality of angled gas outlets extending at an acute angle to the axial direction," as recited in Claim 39.

Because a *prima facie* case of obviousness has not been established, Applicants respectfully request withdrawal of the rejection of Claims 25, 39, 41 and 42 under 35 U.S.C. §103(a). Dependent Claims 28-36, 38, 40 and 43-46 are also patentable over the applied combination of references at least for the same reasons as those discussed above regarding Claim 25, 39, 41 and 42.

### **Conclusion**

For at least the foregoing reasons, Applicants respectfully submit that all pending claims are allowable, and this application is in condition for allowance. Accordingly, Applicants request a favorable examination and consideration of the instant application. Should the Examiner to discuss this application, Applicants request that the undersigned be contacted at the number below.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

Date: August 21, 2008

By:

A handwritten signature in cursive script, appearing to read "Eric Chen", written over a horizontal line.

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